1   1. A synchronization pulse detector, comprising:
2   a shape detector for processing samples of an
3 input signal having a synchronization pulse to determine
4 whether such samples have a sequence of a first "level"
5 portion, followed by a first "transition" portion, followed
6 by a second "level" portion, followed by a second
7 "transition" portion followed by a third "level" portion,
8 one of the first and second "transition" portions being
9 positive and the other one of the first and second
10 "transition" portions being negative.

1   2. The detector recited in claim 1 wherein the
2 shape detector producing a pulse when the sequence is
3 determined.

1   3. A synchronization pulse detector, comprising:
2   a shape detector for processing samples of an
3 input signal having a series of synchronization pulses to
4 determine whether such samples have a sequence of a first
5 "level" portion, followed by a first "transition" portion,
6 followed by a second "level" portion, followed by a second
7 "transition" portion followed by a third "level" portion,
8 one of the first and second "transition" portions being
9 positive and the other one of the first and second
10 "transition" portions being negative, the shape detector
11 producing a shape_detected pulse each time the sequence is
12 determined; and
13   an evaluator responsive to the produced pulses for
14 determining whether such shape_detected pulses are produced
15 at a predetermined rate expected for the series of
16 synchronization pulses.

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1   4.   A synchronization pulse detector, comprising:
2   a shape detector for processing samples of an
3 input signal having a series of synchronization pulses, each
4 one of such pulses preceding a segment of the input signal,
5 to determine whether such samples have a sequence of a first
6 "level" portion, followed by a first "transition" portion,
7 followed by a second "level" portion, followed by a second
8 "transition" portion followed by a third "level" portion,
9 one of the first and second "transition" portions being
10 positive and the other one of the first and second
11 "transition" portions being negative, the shape detector
12 producing a shape_detected pulse and an associated value for
13 the second "level" portion each time the sequence is
14 determined; and
15   an evaluator responsive to the produced
16 shape_detected pulses and their associated values of the
17 second "level" portions for determining whether one of such
18 produced second "level" portions is substantially higher,
19 lower, or the same as a reference value derived from a
20 previous segment of the input signal.

1   5.   The detector recited in claim 4 wherein the
2 evaluator includes a time window responsive to the produced
3 pulses for determining whether such shape_detected pulses
4 are produced at a predetermined rate expected for the series
5 of synchronization pulses.

1   6.   A method for detection of a synchronization
2 pulse comprising determining time varying properties of an
3 input signal having the synchronization pulse and, from such
4 determined time varying properties, detecting the presence

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5   of the synchronization pulse.

1   7.   A method for detection of a synchronization
2   pulse comprising;
3   determining time varying properties of an input
4   signal having the synchronization pulse;
5   comparing the determined time varying properties
6   with time varying properties expected of the synchronization
7   pulse; and,
8   from such comparing, producing an output signal
9   indicative of the detection of the synchronization pulse.

1   8.   A method for detection of a synchronization
2   pulse having a substantially non-time varying portion and a
3   substantially time varying portion, the method comprising;
4   determining time varying properties of one of the
5   portions;
6   comparing the determined time varying properties
7   with time varying properties expected of the one of the
8   portions of the synchronization pulse; and,
9   from such comparing, producing an output signal
10 indicative of the detection of the synchronization pulse.

1   9.   A method for detection of a synchronization
2   pulse within an input signal, such pulse having a
3   substantially non-time varying portion and a substantially
4   time varying portion, the method comprising;
5   determining time varying properties of the input
6   signal to identify one of the portions;
7   comparing the determined time varying properties
8   with time varying properties expected of the one identified

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9 one of the portions of the synchronization pulse; and,

10 from such comparing, producing an output signal

11 indicative of the detection of the synchronization pulse.

1 10. A method for detection of a synchronization

2 pulse within each of a sequence of input signals having a

3 predetermined rate, such pulse having a substantially non-

4 time varying portion and a substantially time varying

5 portion, the method comprising;

6 determining time varying properties of each of the

7 sequence of input signals to identify one of the portions of

8 such one of the input signals;

9 comparing the determined time varying properties

10 with time varying properties expected of the one identified

11 one of the portions of the synchronization pulse;

12 from such comparing, producing output signals

13 indicative of the detection of the synchronization pulses of

14 the sequence of input signals; and

15 comparing rate of production of the output pulses

16 with the predetermined rate of the input signals.

1 11. A method for detecting horizontal

2 synchronization pulses of a sequence of video signals, each

3 one of the video signals having video information subsequent

4 to the horizontal synchronization pulse, such horizontal

5 synchronization pulse having a substantially non-time

6 varying tip portion disposed between a pair of substantially

7 time varying transition portions, such method comprising:

8 producing a first detection signal in response to a

9 comparison between actual time variations in the video

10 signal and a predetermined time variation criterion

11 representative of one of the substantially non-time varying
12 and the substantially time varying portions of the
13 horizontal synchronization pulse;

14   producing, in response to the first detection
15 signal, a second detection signal in response to a
16 comparison between actual time variations in the video
17 signal and a predetermined time variation criterion
18 representative of another one of the substantially non-time
19 varying and the substantially time varying portions of the
20 horizontal synchronization pulse;

21   producing, in response to the first detection and
22 second detection signals, output pulses when such
23 comparisons indicate the level-detection and transition
24 detection signals meet the criteria;

25   determining time duration between output pulses and
26 comparing such time duration with a predetermined time
27 duration representative of the expected time duration of the
28 video signal;

29   determining a minimum value of the video signal for
30 each one of the video signals and for determining whether
31 the determined value representative of the level portion of
32 one of the video signals is within a predetermined window
33 about the lowest determined value of a preceding one of the
34 video signals; and

35   producing a sync pulse in response to the determined
36 time duration and the determined minimum value.

1   12. A method for detecting horizontal
2 synchronization pulses of a sequence of video signals, each
3 one of the video signals having video information subsequent
4 to the horizontal synchronization pulse, such horizontal

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5 synchronization pulse having a substantially non-time

6 varying tip portion disposed between a pair of substantially

7 time varying transition portions, such method comprising:

8   producing a level_detection signal in response to a

9 comparison between actual time variations in the video

10 signal and a predetermined time variation criterion

11 representative of the tip portion of the horizontal

12 synchronization pulse;

13   producing, in response to the level_detection

14 signal, a transition_detection signal in response to a

15 comparison between actual time variations in the video

16 signal and a predetermined time variation criterion

17 representative of the transition portion of the horizontal

18 synchronization pulse;

19   producing, in response to the level_detection and

20 transition_detection signals, output pulses when such

21 comparisons indicate the level_detection and transition

22 detection signals meet the criteria;

23   determining time duration between output pulses and

24 comparing such time duration with a predetermined time

25 duration representative of the expected time duration of the

26 video signal;

27   determining a minimum value of the video signal for

28 each one of the video signals and for determining whether

29 the determined value representative of the level portion of

30 one of the video signals is within a predetermined window

31 about the lowest determined value of a preceding one of the

32 video signals; and

33   producing a sync pulse in response to the determined

34 time duration and the determined minimum value.

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1   13.   A system for detecting a synchronization pulse
2 within an input signal, such synchronization pulse having a
3 substantially non-time varying portion followed by a
4 substantially time varying portion, such system comprising:
5   a waveform characteristic detector for producing a
6 detection signal in response to a comparison between actual
7 time variations in the input signal and a predetermined time
8 variation criterion representative of one of the portions of
9 the synchronization pulse; and
10   a pulse generator for producing an output pulse in
11 response to the detected signal produced by the waveform
12 characteristic generator.

1   14.   A system for detecting a synchronization pulse
2 within an input signal, comprising:
3   a detector responsive to samples of the input signal
4 for separating substantially a non-time varying portion of
5 the input signal from substantially time varying portion of
6 the input signal;
7   a timer for determining time duration of one of the
8 portions; and
9   a processor for detecting the synchronization pulse
10 in response to the determined time duration.

1   15.   A system for detecting horizontal
2 synchronization pulses of a sequence of video signals, each
3 one of the video signals having video information subsequent
4 to the horizontal synchronization pulse, such horizontal
5 synchronization pulse having a substantially non-time
6 varying tip portion disposed between a pair of substantially
7 time varying transition portions, such system comprising:

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8   a detector for producing a first detection signal in
9   response to a comparison between actual time variations in
10   the video signal and a predetermined time variation
11   criterion representative of the one of the substantially
12   non-time varying and substantially time varying portions of
13   the horizontal synchronization pulse;

14   a discriminator responsive to first detection signal
15   for producing a second detection signal in response to a
16   comparison between actual time variations in the video
17   signal and a predetermined time variation criterion
18   representative of the other one of the substantially non-
19   time varying and substantially time varying portions of the
20   horizontal synchronization;

21   a processor responsive to the first detection and
22   second detection signals for producing output pulses when
23   such comparisons indicate the first detection and second
24   detection signals meet the criteria;

25   a time evaluator for determining time duration
26   between output pulses and for comparing such time duration
27   with a predetermined time duration representative of the
28   expected time duration of the video signal;

29   an amplitude evaluator responsive to the video
30   signals for determining a minimum value of the video signal
31   for each one of the video signals and for determining
32   whether the determined value representative of the level
33   portion of one of the video signals is within a
34   predetermined window about the lowest determined value of a
35   preceding one of the video signals; and

36   a synchronization pulse generator for producing a
37   sync pulse in response to the time evaluator and the
38   amplitude evaluator.

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1   16.   A system for detecting horizontal
2 synchronization pulses of a sequence of video signals, each
3 one of the video signals having video information subsequent
4 to the horizontal synchronization pulse, such horizontal
5 synchronization pulse having a substantially non-time
6 varying tip portion disposed between a pair of substantially
7 time varying transition portions, such system comprising:
8   a shape detector for producing a level_detection
9 signal in response to a comparison between actual time
10 variations in the video signal and a predetermined time
11 variation criterion representative of the tip portion of the
12 horizontal synchronization pulse;
13   a transition discriminator responsive to
14 level_detection signal for producing a transition_detection
15 signal in response to a comparison between actual time
16 variations in the video signal and a predetermined time
17 variation criterion representative of the transition portion
18 of the horizontal synchronization pulse;
19   a processor responsive to the level_detection and
20 transition_detection signals for producing output pulses
21 when such comparisons indicate the level_detection and
22 transition detection signals meet the criteria;
23   a time evaluator for determining time duration
24 between output pulses and for comparing such time duration
25 with a predetermined time duration representative of the
26 expected time duration of the video signal;
27   an amplitude evaluator responsive to the video
28 signals for determining a minimum value of the video signal
29 for each one of the video signals and for determining
30 whether the determined value representative of the level

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31 portion of one of the video signals is within a

32 predetermined window about the lowest determined value of a

33 preceding one of the video signals; and

34   a synchronization pulse generator for producing a

35 sync pulse in response to the time evaluator and the

36 amplitude evaluator.

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